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EXAMINER

EL CHANTI, HUSSEIN A

ART UNIT	PAPER NUMBER
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2157

DATE MAILED: 03/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/747,496

Applicant(s)

ANDERSSON ET AL.

Examiner

Hussein A El-chanti

Art Unit

2157

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 January 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4,6-32,34-60 and 62-100 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4,6-32,34-60 and 62-100 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. This action is responsive to RCE received on Jan. 11, 2005. Claims 1-4, 6-32, 34-60 and 62-100 are pending examination.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-4, 6-15, 17-32, 34-43, 45-60, 62-71, 73-100 are rejected under 35 U.S.C. 102(e) as being anticipated by Wang et al., U.S. Patent No. 6,757,242 (referred to hereafter as Wang).

Wang teaches the invention explicitly as claimed including a system and method for detection of a link failure between two switches a spanning tree partitioning module will partition the network into two trees at the point of the link failure. Thereafter, a link and switch identification module will identify a link between the two trees that can replace the failed link and has the least impact on the network (see abstract).

As to claims 1, 29, 57 and 85-86, Wang teaches a method, device and computer respectively for bypassing a network change by a node in a communication network, the method comprising:

pre-determining a recovery path for bypassing a network change that affects communications over a primary path (see col. 3 lines 10-21, a recovery table is used to determine path to be used when a failure is detected);

installing the recovery path in a forwarding table (see col. 3 lines 10-21, the recovery table has includes the active path and the recovery paths);

detecting the network change that affects communications over the primary path (see col. 11 lines 26-53, a failure is detected in the network); and

switching communications from the primary path to the recovery path in order to bypass the network change (see col. 11 lines 26-53, a recovery path is selected using the recovery table).

As to claims 2, 30, 58 and 88, Wang teaches the method, device and computer of claims 1, 29 and 57 respectively, wherein pre-determining the recovery path for bypassing the network change comprises:

establishing as the recovery path a label switched path that bypasses the network change (see col. 11 lines 26-53).

As to claims 3, 31 and 59, Wang teaches the method, device and computer of claims 1, 29 and 57 respectively, wherein pre-determining the recovery path for bypassing the network change comprises:

logically introducing the network change into a routing database (see col. 11 lines 26-53); and

determining the recovery path based upon a pre-determined path determination scheme (see col. 11 lines 26-53).

As to claims 4, 32 and 60, Wang teaches the method, device and computer of claims 3, 29 and 57 respectively wherein the predetermined path determination scheme comprises a shortest path computation (see col. 3 lines 10-20).

As to claims 6, 34 and 62, Wang teaches the method, device and computer of claims 1, 29 and 57 respectively, wherein detecting the network change that affects communications over the primary path comprises: using a fast liveness protocol to detect the network change (see col. 11 lines 26-53).

As to claims 7, 35 and 63, Wang teaches the method, device and computer of claims 1, 29 and 57 respectively, wherein the network change comprises a link failure (see col. 11 lines 26-53).

As to claims 8, 36 and 64, Wang teaches the method, device and computer of claims 1, 29 and 57 respectively, wherein the network change comprises a node failure (see col. 9 lines 50-67).

As to claims 9, 37 and 65, Wang teaches the method, device and computer of claims 1, 29 and 57 respectively, wherein the network change comprises a routing change (see col. 11 lines 26-53).

As to claims 10, 38 and 66, Wang teaches the method, device and computer of claims 1, 29 and 57 respectively, wherein switching communications from the primary

path to the recovery path in order to bypass the network change comprises: activating the recovery path (see col. 11 lines 26-53).

As to claims 11, 39 and 67, Wang teaches the method, device and computer of claims 10, 29 and 57 respectively, wherein activating the recovery path comprises: removing the primary path from a forwarding table (see col. 3 lines 10-20).

As to claims 12, 40 and 68, Wang teaches the method, device and computer of claims 10, 29 and 57 respectively, wherein activating the recovery path comprises: blocking the primary path in a forwarding table (see col. 3 lines 10-20).

As to claims 13, 41 and 69, Wang teaches the method, device and computer of claims 10, 29 and 57 respectively, wherein activating the recovery path comprises: marking the recovery path as a higher priority path than the primary path in a forwarding table (see col. 6 lines 34-47).

As to claims 14, 42 and 70, Wang teaches the method, device and computer of claims 1, 29 and 57 respectively, wherein switching communications from the primary path to the recovery path in order to bypass the network change comprises: forwarding all communications from the primary path over the recovery path (see col. 9 lines 11-40).

As to claims 15, 43 and 71, Wang teaches the method, device and computer of claims 1, 29 and 57 respectively, wherein switching communications from the primary path to the recovery path in order to bypass the network change comprises: forwarding

some communications from the primary path over the recovery path based upon a predetermined priority scheme (see col. 9 lines 11-40).

As to claims 17, 45 and 73, Wang teaches the method, device and computer of claims 1, 29 and 57 respectively, further comprising: determining a new primary path (see col. 9 lines 11-40).

As to claims 18, 46 and 74, Wang teaches the method, device and computer of claims 17, 29 and 57 respectively, wherein determining the new primary path comprises: receiving routing information; and computing the new primary path based upon the routing information (see col. 9 lines 11-40).

As to claims 19, 47 and 75, Wang teaches the method, device and computer of claims 17, 29 and 57 respectively, further comprising: activating the new primary path (see col. 9 lines 11-40).

As to claims 20, 48, 76 and 89, Wang teaches the method, device and computer of claims 19, 29 and 57 respectively, further comprising: switching communications from the recovery path to the new primary path after activating the new primary path (see col. 9 lines 11-40).

As to claims 21, 49, 77 and 90, Wang teaches the method, device and computer of claims 19, 29 and 57 respectively, wherein determining the new primary path and activating the new primary path comprise:

freezing a forwarding table after switching communications from the primary path to the recovery path;

computing the new primary path while the forwarding table is frozen; and

coordinating activation of the new primary path with at least one other node in the communication network (see col. 9 lines 11-40).

As to claims 22, 50 and 78, Wang teaches the method, device and computer of claims 21, 29 and 57 respectively, wherein coordinating activation of the new primary path with at least one other node in the communication network comprises: using a timer to determine when to activate the new primary path (see col. 9 lines 11-40).

As to claims 23, 51 and 79, Wang teaches the method, device and computer of claims 21, 29 and 57 respectively, wherein coordinating activation of the new primary path with at least one other node in the communication network comprises: using a predetermined diffusion mechanism to determine when to activate the new primary path (see col. 9 lines 11-40).

As to claims 24, 52 and 80, Wang teaches the method, device and computer of claims 21, 29 and 57 respectively, wherein coordinating activation of the new primary path with at least one other node in the communication network comprises: receiving a signal from a master node; and activating the new primary path upon receiving the signal from the master node (see col. 9 lines 11-40).

As to claims 25, 53 and 81, Wang teaches the method, device and computer of claims 21, 29 and 57 respectively, wherein coordinating activation of the new primary path with at least one other node in the communication network comprises: receiving signals from a number of slave nodes; determining that the number of slave nodes have completed computing new primary paths; and activating the new primary path upon determining that the number of slave node have completed computing new primary paths (see col. 9 lines 11-40).

As to claims 26, 54 and 82, Wang teaches the method, device and computer of claims 25, 29 and 57 respectively, further comprising: sending a signal to the number of slave nodes (see col. 7 lines 1-35).

As to claims 27, 55, 83 and 91-92, Wang teaches the method, device and computer of claims 17, 29 and 57 respectively, further comprising: computing a new recovery path to protect the new primary path (see col. 9 lines 11-40).

As to claims 28, 56 and 84, Wang teaches the method, device and computer of claims 19, 29 and 57 respectively, further comprising: computing a new recovery path after activating the new primary path (see col. 9 lines 11-40).

As to claims 87, Wang teaches a communication system comprising a plurality of interconnected communication nodes, wherein primary paths are established for forwarding information and recovery paths are pre-computed for bypassing potential primary path failures (see col. 9 lines 11-40).

As to claims 93, Wang teaches a method for reconverging routes in a communication network, the method comprising: determining that a route change is needed;

freezing forwarding tables so that a predetermined set of routes is used during reconvergence; and

reconverging on a new set of routes while the forwarding tables are frozen (see col. 9 lines 11-40).

As to claim 94, Wang teaches the method of claim 93, further comprising: activating the new set of routes in a coordinated manner (see col. 9 lines 11-40).

As to claim 95, Wang teaches the method of claim 94, wherein activating the new set of routes in a coordinated manner comprises: starting a timer by each of a number of nodes in the communication network upon determining that reconvergence is needed; and activating the new set of routes by each of the number of nodes upon expiration of the timer (see col. 9 lines 11-40).

As to claim 96, Wang teaches the method of claim 94, wherein activating the new set of routes in a coordinated manner comprises: using a predetermined diffusion mechanism by each of the number of nodes to determine when reconvergence is complete; and activating the new set of routes by each of the number of nodes upon determining that reconvergence is complete (see col. 9 lines 11-40).

As to claim 97, Wang teaches the method of claim 94, wherein activating the new set of routes in a coordinated manner comprises: designating one of the number of nodes as a master node and designating the remaining nodes as slave nodes; sending a first signal by each of the slave nodes to the master node upon reconverging on the new set of routes; and sending a second signal by the master node to the slave nodes upon receiving the first signal from each of the slave nodes (see col. 9 lines 11-40).

As to claim 98, Wang teaches a use of a bypass mechanism for bypassing a network change in a communication network, the use comprising: using the bypass mechanism to pre-compute a recovery path for bypassing a network change affecting communication over a primary path, detect the network change affecting communication over the primary path, and switch communications from the primary path to the pre-computed recovery path upon detecting said network change (see col. 9 lines 11-40).

As to claim 99, Wang teaches the use of claim 98, further comprising: using the bypass mechanism to compute a new primary path after switching communications from the primary path to the pre-computed recovery path; and using the bypass mechanism to switch communications from the pre-computed recovery path to the new primary path (see col. 9 lines 11-40).

As to claim 100, Wang teaches the use of claim 99, further comprising: using the bypass mechanism to compute a new recovery path for bypassing a network change affecting communication over the new primary (see col. 9 lines 11-40).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 16, 44 and 72 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang in view of Schuster et al., U.S. Patent No. 6,363,053 (referred to hereafter as Schuster).

Wang teaches the method, device and computer including switching communications from the primary path to the recovery path in order to bypass the network change comprises forwarding some communications from the primary path over the recovery path based upon a predetermined priority scheme (see the rejection of claim 16).

However Wong does not explicitly teach the limitation "priority scheme comprises an IP Differentiated Services scheme".

However, Schuster teaches a method and apparatus for measurement-based conformance testing of service level agreements in networks. The method includes first collecting quality of service information from network traffic over a plurality of network nodes using IP differentiated priority scheme (see abstract).

It would have been obvious for one of the ordinary skill in the art at the time of the invention to modify Wong's priority scheme by using an IP differentiated Scheme as

in Schuster because doing so would allow for improved quality of service (QoS) to be realized in higher priority traffic (see col. 1 lines 47-60).

Response to Arguments

4. Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.
5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hussein A El-chanti whose telephone number is (571)272-3999. The examiner can normally be reached on Mon-Fri 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Etienne can be reached on (571)272-4001. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hussein El-chanti

March 9, 2005


SALEH NAJJAR
PRIMARY EXAMINER